A New *Phenacoccus* from Southern California

(Homoptera : Coccoidea : Pseudococcidae)

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On 22 June 1963, R. L. Westcott found this mealybug infesting *Helianthus tephrodes* Gray in the sand hills of Imperial County, California, west of Yuma, Arizona. Westcott gave this catch along with an ant found in association with it to Roy Snelling of the Los Angeles County Museum. I volunteered to identify the mealybugs and found they resembled *Phenacoccus gossypii* Townsend and Cockerell, especially with respect to the circulus. Not satisfied with their identification, I sent them to Richard Wilkey of the California Bureau of Entomology, Sacramento, for comment. Finally, H. L. McKenzie of the University of California, Davis, was consulted and he found the species to be new.

I wish to express my gratitude to all the above-mentioned people but especially to H. L. McKenzie who extended to me the privilege of describing this species and who reviewed the manuscript. I take this opportunity to name this species for C. F. Harbison, curator of entomology at the San Diego Natural History Museum.

Phenacoccus harbisoni Peterson, new species

HOLOTYPE FEMALE.—Range of lengths of 31 mounted specimens: 3.25 to 5.60 mm, mean: 4.46 mm. Dorsum with 18 pairs of cerarii, one pair between frontal and ocular pairs, each usually with two cerarian setae but occasionally more on anterior cerarii (up to five), and three larger conical cerarian setae on anal cerarii; all cerarii with slight concentration of trilocular pores. Dorsal multilocular disk pores absent on body anterior to third abdominal segment, a few laterally and occasionally absent on third segment, gradually increasing in number posteriorly, absent on ninth segment. Dorsal setae small and sparse. Trilocular pores sparse, evenly spread over dorsum showing slight segmental concentrations on abdomen. Oral collar tubular ducts loosely follow segmentation on abdomen, present on thorax from sixth cerarius back. Anal ring of normal size and form for genus; with six setae, all about twice anal ring opening diameter.

On venter, no multilocular disk pores present anterior to third abdominal segment, a few laterally placed multilocular pores present on third segment, increasing posteriorly with median pores from fifth segment to ninth. Quinquelocular pores present from interantennal area to eighth abdominal segment along median area bounded roughly by spiracles. Medium-sized oral collar ducts present laterally throughout body showing segmental concentrations; smaller oral collar ducts present from fourth adbominal segment to anal lobes. Ventral body setae longer, more numerous than on dorsum. Trilocular pores evenly distributed, replaced by quinqueloculars medially anterior to sixth segment.

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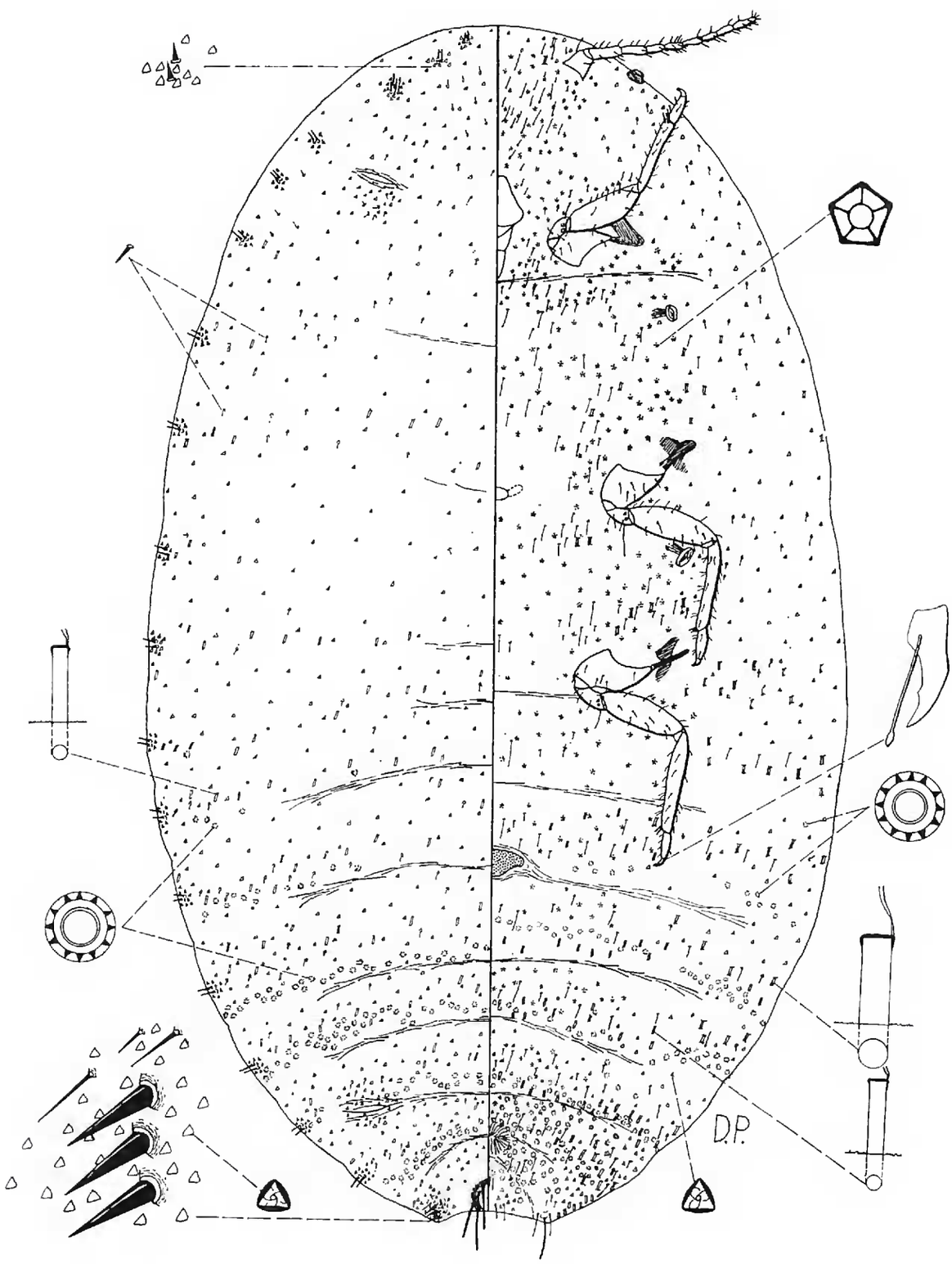

EXPLANATION OF FIGURE

Fig. 1. *Phenacoccus harbisoni* Peterson.

Circulus medium sized with tendency for ox-yoke like anterolateral extensions as in *Phenacoccus gossypii* though much less pronounced; not divided by intersegmental fold. Antennae average size for genus, nine segmented. Legs short, femora extending only halfway or less to body margin from coxae in mounted

specimens; plantar surface of claw with denticle or tooth; ends of claws occasionally appearing "worn down."

The unmounted, alcohol preserved, adult female with well-defined body segmentation. Head appears dorsally as a flat anterior extension; pronotum with somewhat rectangular raised hump, its bordering sutures well defined medially; mesonotum and metanotum each less well defined, shorter humps with sutures partly obliterated; abdominal segments two to nine easily discernible as short humps; two series of punctures located on intersegmental sutures divide dorsum longitudinally in thirds and become slit-like on abdomen. Subcutaneous clear circular spots extend laterally across each body segment; venter appears similar to dorsum except two additional rows of punctures are present and well defined laterally making four rows of longitudinal punctures in all; circulus well defined and sclerotized. All preserved specimens in the type series lacked evidence of wax.

Holotype adult female (mounted on a slide by itself) and paratypes (31 mounted and about 73 preserved in alcohol) have been deposited in the University of California collection at Davis. Additionally, five paratypes have been deposited in the Los Angeles County Museum, Los Angeles, California; two with the San Diego Natural History Museum, San Diego, California; five with the California State Department of Agriculture, Sacramento; two with the United States National Collection of Coccoidea, Washington, D. C.; and two in the British Museum (Natural History), London, England. This accounts for all type material.

Type and paratype adult females were collected by R. L. Westcott from a sunflower, *Helianthus tephrodes* Gray, in the sand hills 0.8 MILES EAST OF GRAY'S WELL, 3.5 miles east of Gordon's Well, and 18 miles west of Winterhaven on State Highway 80 located in southeast IMPERIAL COUNTY, CALIFORNIA, on 22 June 1963. Paratypes were also collected by the author from the same locality and host and from a second host, *Petalonyx Thurberi* Gray, the sandpaper plant, as identified by Miss Bonnie Templeton. This area could be characterized as rolling, shifting sand dunes, very dry, with sparse vegetation, subject to great temperature changes, and probably as unlikely a spot for mealybugs as could be imagined.

On 28 December 1963, the author visited the type locality and found the mealybugs abundant on a few *Helianthus tephrodes* and less numerous on *Petalonyx Thurberi.* The mealybugs had a small amount of powdery wax on them but no filaments. Later, on specimens collected live, filaments of wax were exuded enveloping the insect and an orange egg mass. The mealybugs produced an abundance of honeydew which coated the leaves below and formed a crust on the sand beneath the infested plants. They were present mainly on the stems near the leaf nodes. The author estimated that an average heavily infested plant had

at least 150 individuals. The plants which were infested appeared somewhat more protected from the wind than noninfested plants but that this favored the insect is conjecture. An ant, *Myrmecocystus semirufus* Emery, as determined by Roy Snelling, was seen in association with the mealybugs.

This species, as pointed out by H. L. McKenzie in personal correspondence, keys to *Phenacoccus infernalis* McKenzie (McKenzie, 1964: 239), but differs by the greater numbers and extent of quinquelocular pores over the ventral median surface. It is also related to *Phenacoccus graminosus* McKenzie but has quinquelocular pores more extensive on the abdomen, a larger and more laterally extended circulus, and is without the multilocular disk pores along the lateral margin of the thorax both dorsally and ventrally. *Phenacoccus eremicus* Ferris, though close, differs from *Phenacoccus harbisoni* in not having ventral quinquelocular pores in the head region or on abdominal segments seven and eight, and by having very restricted multilocular disk pore distribution dorsally. *Phenacoccus harbisoni* differs from *Phenacoccus gossypii* in lacking the greatly expanded circulus, though *Phenacoccus harbisoni* has some lateral elongation; by lacking the row of setae possessed by *Phenacoccus gossypii* along the anterior margin of the circulus; by lacking the extent of small trilocular pores lateral to the anal ring; and by having a more uniform distribution of pores, ducts, and setae on the median ventral surface of the thorax. Lastly, both *Phenacoccus hurdi* McKenzie and *alleni* McKenzie have eight rather than nine antennal segments.

The following is a modification of McKenzie's (1964) key to North American species of *Phenacoccus* which includes *Phenacoccus harbisoni.*

16 (14)

Dorsal multilocular disk pores occurring for the most part along posterior border of segments six and seven; cerarii with little concentration of trilocular pores and with cerarian setae small and inconspicuous ..... *eremicus* Ferris

Dorsal multilocular disk pores present in considerable numbers on most abdominal segments; cerarii distinct, with medium trilocular pore concentration, and with larger cerarian setae 16a

16a (16)

Quinquelocular pores present over entire median ventral portion of body from head through eighth abdominal segment; circulus not divided by segmental line, slightly produced anterolaterally; three large anal lobe cerarian spines present ..... *harbisoni*, new species

Quinquelocular pores on venter present only near mouth parts, few in number; circulus divided by segmental line; two large anal lobe cerarian spines present ..... *infernalis* McKenzie

The suggested common name is Harbison's mealybug.

LITERATURE CITED

McKENZIE, H. L. 1964. Fourth taxonomic study of California mealybugs, with additional species from North America, South America, and Japan (Homoptera: Coccoidea: Pseudococcidae). Hilgardia, 35 (10): 211–272.

SCIENTIFIC NOTE

New host plant for *Tephritis araneosa* (Diptera : Tephritidae).[1]—In his 1951 study of the genus *Tephritis*, Quisenberry (Jour. Kansas Entomol. Soc., 24: 56–72) noted that *Tephritis araneosa* (Cocquillett) was widely distributed in western United States and had been reported from Lander, Farson, and Big Creek, Wyoming. He recorded the following as host plants of the larval stage: *Artemisia dracunculoides* in Colorado, *Tanacetum huronense* and *Arnica foliosa* in Oregon.

During the spring of 1960 it was observed that the flowers of *Erigeron pumilus*, near Dwyer, Wyoming, were infested with an organism which caused a rotted appearance at the base of the disc flowers. Removal of the disc flowers laid bare oval, black puparia. Several infested plants were brought into the laboratory in mid-June, where they were transplanted into a box covered with cotton mesh screening. A few days later, nine adults of *Tephritis areneosa* emerged from the infested flower heads.

In 1961, *Erigeron pumilus* began to blossom in the Dwyer area about 2 June. Examination of the blossoms at this time revealed that the plants are damaged before the blossoms open, since damage was already apparent and only mature larvae and puparia were found. The larvae feed at the base of the disc flowers, which soon rot leaving a streak across the blossom which is readily visible from several feet away. Infested blossoms were collected to determine how many larvae invade a single blossom. Out of 32 blossoms, 26 contained one larva or puparium; 5 contained 2 and 1 contained 4. Random counts were made of 695 blossoms on 16 June; 7% were found to be infested.

General blossoming of *E. pumilus* occurred around 25 May in the spring of 1962. A random sample of 221 blossoms on this date indicated that 20.8% were infested with *T. araneosa*. Of 216 blossoms examined on 1 June, 13.9% were infested. A final count was made on 8 June, when 48 blossoms were examined, of which 10.4% were infested.

The author wishes to express his appreciation to Dr. Cedric L. Porter, of the Rocky Mountain Herbarium, for identifying *Erigeron pumilus*, and to Dr. R. H. Foote, of the U. S. National Museum, for identification of *Tephritis araneosa*.
—R. J. LAVIGNE, *University of Wyoming, Laramie.*

[1] Published with the approval of the Director, Wyoming Agricultural Experiment Station, as Journal Paper No. 232.